



Disinfectants and Disinfection Byproducts Rules

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June 2016

D/DBP Rules

- ▶ Stage 1 and Stage 2 Disinfectants/ Disinfection Byproduct Rules (D/DBP) are effective
- ▶ Applies to all community and non-transient non-community systems that add a chemical disinfectant (i.e., Chlorine/chloramines)
- ▶ Requirements:
 - Disinfectant MRDLs for chlorine, chloramines, and chlorine dioxide
 - DBP MCLs for TTHM, HAA5, bromate & chlorite
 - Treatment technique requirement for TOC (surface water systems using conventional treatment only)



Stage 1 Requirements

- ▶ Disinfectant MRDLs, Monitoring and Reporting (chlorine, chloramines, and chlorine dioxide)

Disinfectant	MRDL
Chlorine	4.0 mg/L*
Chloramines	4.0 mg/L*
Chlorine Dioxide	0.8 mg/L
*Based on a running annual average (RAA)	

- Chlorine/chloramine residuals – monitor monthly at same time and location as bacteriological collection sites for RTCR; report on the lab8 form; and submit a RAA on a quarterly basis if one residual exceeds 4.0 mg/L in the DS
- Chlorine dioxide – monitor daily at entry point (EP) to distribution system; 3 sample set in DS required if EP exceeds MRDL; report monthly
- Report the disinfectant results to OPH District Office

MRDL – Maximum Residual Disinfectant Level; RTCR – Revised Total Coliform Rule (effective 4/1/16);

RAA – running annual average; DS – distribution system; EP – entry point to DS

Stage 1 Requirements

▶ TTHM and HAA5 MCLs and Reporting

Disinfection Byproducts	MCL*
TTHM	0.080 mg/L (80 ppb)**
HAA5	0.060 mg/L (60 ppb)**
* MCL = the maximum allowable concentration of a contaminant in the water	

- TTHM–HAA5 samples must be analyzed by a DHH–certified lab (check lab certification); contact lab for sample kit (multiple bottles); one sample kit per monitoring site
- Report TTHM–HAA5 results (certified lab report) quarterly/annually to Central Office:

P.O. Box 4489, Baton Rouge, LA 70821



Stage 1 Requirements

▶ Chlorite and Bromate MCLs, Monitoring and Reporting

Disinfection Byproducts	MCL
Bromate	0.010 mg/L (10 ppb)*
Chlorite	1.0 mg/L**
* Based on a running annual average	
** Based on monthly average of DS samples	

- Chlorite – Daily (EP) and monthly (DS) monitoring
- Bromate – monthly (EP) monitoring
- Report results to OPH District Office



Stage 1 Requirements

- ▶ TOC Removal, Monitoring and Reporting for surface water systems
 - Meeting one of the Alternative Compliance Criteria or use Step 1 Removals (below) or Step 2 Jar testing

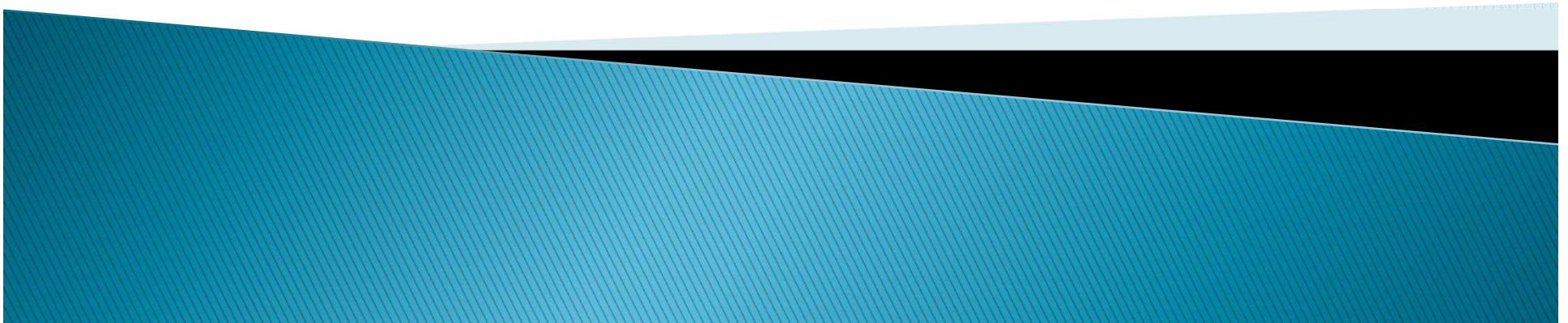
Source TOC, mg/L	Source Water Alkalinity, mg/L as CaCO ₃		
	0–60	>60–120	>120
≥2.0–4.0	35.0	25.0	15.0
>4.0–8.0	45.0	35.0	25.0
>8.0	50.0	40.0	30.0

- Monthly monitoring at source and after treatment
- Report TOC and alkalinity certified results to OPH District Office



Stage 2 Disinfectants and Disinfection Byproducts Rule

Overview of Main Requirements



Stage 2 DBP Rule

- ▶ Affects all community and non-transient non-community water systems that disinfect (includes consecutive systems)
- ▶ Purpose of the rule:
Reduce the peak TTHM and HAA5 levels at individual locations in distribution system.



What's New for Stage 2 DBPR Compliance Monitoring?

The major requirements include:

- ▶ Changes in monitoring frequency and locations
- ▶ Locational Running Annual Average calculation to determine compliance (LRAA)
- ▶ Identifying when TTHM and HAA5 levels exceed the Operational Evaluation Level



Stage 2 DBPR: Changes for When to Monitor for TTHMs and HAA5s

Stage 1 DBPR

Quarterly

Warmest water
temperature
month



Stage 2 DBPR

Every 90 days

Highest DBP
month (Peak
Historical Month)

Stage 2 DBPR: Changes for Determining Compliance with MCL

Stage 1 DBPR

Running Annual Average: compliance based on a system-wide average of all results for all sites over 4 quarters



Stage 2 DBPR

Locational Running Annual Average: compliance based on the average of each site over 4 quarters;

**Can NOT use results from different sites to skew the average*

EXAMPLE: Calculate LRAA (in ppb)

Sample Site	Q1	Q2	Q3	Q4	TTHM LRAA	Violation (Yes/No)
Site A	- - -	- - -	50	- - -	50	YES <i>*Any site above MCL based on LRAA means violation</i>
Site B	20	31	60	45	39	
Site C	170	70	55**	110	101*	
Site D	30	50	95	100	69	

TTHM MCL = 80 ppb **OEL is triggered in Q3

mg/L = ppm µg/L = ppb

Stage 2 DBPR Sample Sites

- ▶ Most systems will monitor at their Stage 1 site if its still the MRT site (oldest water) to represent the highest TTHMs
- ▶ Most systems will monitor at the DS midpoint where the chlorine residual is stable to represent the highest HAA5
- ▶ If the distribution system (service area) increases in size, the MRT location may change and the Stage 2 CMP will need to be updated.
- ▶ Sample site changes must be approved prior to monitoring



Stage 2 Monitoring Requirements

Ground Water Systems

Source Type	Population	Compliance Monitoring	
		FREQ ¹	TOTAL ²
GW or GWP	<500	Peak Month	2 sites
GW or GWP	500 – 9,999	Peak Month	2 sites
GW or GWP	10K – 99,999	Every 90 Days	4 sites
GW or GWP	100K – 499,999	Every 90 Days	6 sites
GW or GWP	≥ 500K	Every 90 Days	8 sites

¹ All systems must monitor during month of highest DBP concentrations.

² All systems must take dual a sample set (TTHM and HAA5) at each site.



Stage 2 Monitoring Requirements

Surface Water Systems

Source Type	Population	Compliance Monitoring	
		FREQ ¹	TOTAL ²
SW or SWP	<500	Peak Month	2 sites
SW or SWP	500 – 3,300	Every 90 Days	2 sites
SW or SWP	3,301 – 9,999	Every 90 Days	2 sites
SW or SWP	10K – 49,999	Every 90 Days	4 sites
SW or SWP	50K – 249,999	Every 90 Days	8 sites
SW or SWP	250K – 999,999	Every 90 Days	12 sites

¹ All systems must monitor during month of highest DBP concentrations.

² All systems must take dual a sample set (TTHM and HAA5) at each site.



Where to Submit Stage 2 DBPR Info?

- ▶ Send the following to LDHH–Central Office (address below):
 - Stage 2 Compliance Monitoring Plans and Maps;
 - Certified lab report of TTHM–HAA5 results;
 - Operational Evaluation Level Reports; and
 - Monitoring Plan changes.

DHH–OPH, Engineering Services

P.O. BOX 4489

Baton Rouge, LA 70821



Stage 2 TTHM–HAA5 Results

- ▶ REVIEW your Stage 2 Compliance Monitoring Plan BEFORE you sample and AFTER you receive your lab report to ensure you monitored correctly and the lab report is correct and complete.
- ▶ Results are due by the 10th following the monitoring period (quarter)
- ▶ Send by Certified Mail (signed green card)!
Also fax if going to be after the 10th
- ▶ Submit the submission (SDWP website) and certified lab report



For Systems Monitoring Annually or Triennially

Increase sampling frequency to every 90 days and to dual sampling at all sites when ANY of the following happens:

- Any TTHM sample > 0.080 mg/L or HAA5 sample > 0.060 mg/L at any location,
- Any source water annual average TOC level, before any treatment, > 4.0 mg/L at any treatment plant.



Reduced Monitoring Qualifications

After the first year of Stage 2 compliance monitoring:

- ▶ Systems qualify if LRAAs at all monitoring locations are:
 ≤ 0.040 mg/L for TTHM, and ≤ 0.030 mg/L for HAA5
- ▶ Surface water or GUDI systems must also have TOC levels ≤ 4.0 mg/L in source water at each treatment plant
 - Systems must sample for TOC every 30 days to qualify for reduced monitoring



Application for Reduced Monitoring


- The system must submit a written request to go to reduced monitoring along with a table showing the last four quarters of results and the calculated LRAA for each site.
- The system's request should include the suggested sites and monitoring period. DHH will review the request and either edit the request, approve, or deny.
- The State may return the system to routine monitoring at the State's discretion.



Stage 2 DBPR Reduced Monitoring Requirements Ground Water Systems

Population Size Category	Monitoring Frequency	Monitoring Locations
< 500	Every 3 rd year	2 sites ¹ – take individual TTHM and HAA5 samples <u>or</u> 1 site – take dual sample set
500 – 9,999	Once per year during month of highest DBP concentration	2 sites – take dual sample sets
10,000 – 99,999		
100,000 – 499,999	Every 90 days	2 sites – take dual sample sets


¹ System is required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentration, respectively.



Stage 2 DBPR Reduced Monitoring Requirements Surface Water Systems

Population Size Category	Monitoring Frequency	Monitoring Locations
< 500	Once per year during month of highest DBP concentration	2 sites ¹ – take individual TTHM and HAA5 samples <u>or</u>
500 – 3,300		1 site – take dual sample set
3,301 – 9,999		2 sites – take dual sample sets

¹ System is required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentration, respectively.



Stage 2 DBPR Reduced Monitoring Requirements Surface Water Systems

Population Size Category	Monitoring Frequency	Monitoring Locations
10,000 – 49,999	Every 90 days	2 – take dual sample sets
50,000 – 249,999		4 – take dual sample sets
250,000 – 999,999		6 – take dual sample sets



Remaining on Stage 2 DBPR Reduced Monitoring

- ▶ Systems on quarterly reduced monitoring
 - All sites LRAAs for TTHMs and HAA5 must be ≤ 0.040 mg/L and 0.030 mg/L, respectively
- ▶ Systems on annual or less frequent monitoring
 - All samples for TTHMs and HAA5 must be ≤ 0.060 mg/L and 0.045 mg/L, respectively
- ▶ Surface water or GUDI systems must monitor TOC levels every 90 days and maintain annual average levels of ≤ 4.0 mg/L in source water at each treatment plant



Operational Evaluation Level

What is it?

- ▶ Requires water systems to determine if the DBPs operating level is above the MCL
- ▶ Early warning for systems with possible MCL violations which allows systems to act to prevent violations
- ▶ Systems with an OEL triggered must create an OEL Report and submit to DHH within 90 days of the notification of exceedance



Operational Evaluation Level Report: Is Required Every time when...

The OEL exceeds the MCL:

$$\text{OEL} = \frac{Q_1 + Q_2 + 2Q_3}{4}$$

- ▶ Where
 - Q_3 = current quarter result multiplied by 2
 - Q_2 = previous quarter result
 - Q_1 = quarter before previous quarter result
- ▶ MCL for TTHM = 0.080 mg/L = 80 µg/L
- ▶ MCL for HAA5 = 0.060 mg/L = 60 µg/L



OEL Report: What to write?

- ▶ The OEL Report must describe how to minimize high DBP levels and how each of the following may have affected DBP levels:
 - Storage tank operations
 - Excess storage capacity
 - Distribution system flushing
 - Treatment changes
 - Changes in sources or source water quality
 - Any problems that may contribute to TTHM and HAA5 formation
- ▶ Report form is on the SDWP website



Common Compliance Issues

- ▶ Wrong month
- ▶ Wrong Site
- ▶ Reporting
- ▶ Changing plan without prior approval
- ▶ Updating TCR plan is not updating DBP plan
- ▶ Phone conversations are not documentation
- ▶ Reduced monitoring requests are not auto
- ▶ Increased monitoring is system responsibility



State of Louisiana
Department of Health and Hospitals
Office of Public Health
Kathy H. Kliebert
SECRETARY

Bobby Jindal
GOVERNOR

CERTIFIED MAIL # -7013 3020 0000 8482 6587- Return Receipt Requested

April 15, 2014

TO:

RE: Safe Drinking Water Act:
Notice of Violation/Public Notification of Non-Compliance
Stage 2 Disinfection/Disinfection By-Products Rule Monitoring and Reporting Violation
Water System Name
PWSID #xxxxxxx
Parish Name

Dear Mr. Administrative Contact,

Pursuant to the requirements of the amended Safe Drinking Water Act (42 U.S.C.A. 300f et seq.) which have been incorporated into the Louisiana State Sanitary Code, failure to comply with various provisions of Part XII of the Louisiana State Sanitary Code requires water supplies to inform their consumers of such non-compliance. Upon review of the records of this office, the above water supply is currently in non-compliance with the requirements of Part XII of the Louisiana State Sanitary Code, specifically LAC 51:XII.301.B. The non-compliance (and the requirement for public notification) was determined as a result of the above supply failing to monitor and/or report for total trihalomethanes (TTHMs) and haloacetic acids (HAA5) during the monitoring period (first quarter 2014). Therefore, you are hereby advised that this failure to meet the requirements of Part XII of the Louisiana State Sanitary Code requires that you notify all customers on the system (including new tie-ins) of this non-compliance by both of the following methods:

1. By notice published in a general circulation newspaper serving the area as soon as possible, but no later than forty-five (45) days from receipt of this letter; and
1. By direct mail or hand delivery to each customer as soon as possible, but no later than ninety (90) days from receipt of this letter.

Part XII of the Louisiana State Sanitary Code requires the notice to include the following statements:

*We are required to monitor your drinking water for disinfection byproducts (total trihalomethanes [TTHM] and haloacetic acids-five [HAA5]) every 90 days from the peak historical month (June). Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During the monitoring period of **January** through **March**, the Water System Name did not monitor, did not complete all monitoring, or did not report the results for total trihalomethanes (TTHMs) and haloacetic acids-five (HAA5), and therefore we cannot be sure of the quality of your drinking water during that time.*

ENGINEERING SERVICES
Bienville Building • P.O. Box 4489 • Baton Rouge, Louisiana 70821-4489
Phone #: 225/342-7499 • Fax #: 225/342-7303 • www.dhb.louisiana.gov
"An Equal Opportunity Employer"

RE: Safe Drinking Water Act:
Notice of Violation/Public Notification of Non-Compliance
Stage 2 Disinfection/Disinfection By-Products Rule Monitoring and Reporting Violation
Water System Name
PWS ID #xxxxxxx
Parish Name
Page 2

This violation occurred because of the failure to collect the required samples for total trihalomethanes (TTHMs) and haloacetic acids (HAA5) from the water system's distribution system.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Necessary action has been taken to prevent this violation from recurring.

Part XII of the Louisiana State Sanitary Code further requires that the notice include the telephone number of the **owner, operator, or designee** of the public water system as a source of additional information concerning the notice. Steps being taken to comply should also be included.

Keep in mind there are specific deadlines by which to notify your customers. You should, therefore, avoid any delays in making your notifications. Failure to comply with the requirement for public notification may result in enforcement action being taken against your water supply by the State of Louisiana and/or the EPA.

Upon completing each method of publication (mail or hand delivery notification and newspaper notification), you are required to submit to LDHH a certification that you have fully complied with the public notification regulations. A blank certification form is enclosed for your convenience. You may make copies as needed. **In addition, you must include along with this certification a representative copy of: (1) the public notice mailed or hand delivered to your customers, including the date of mailing or hand delivery; and (2) the public notice, as published in the local newspaper, including the date of publication.** Verification of your actions is necessary to ensure that State and EPA records of this matter are accurate and complete. Please advise this office of your action in this matter as soon as possible, but no later than **10 days** of completion of each method of public notification.

If this office can be of assistance, please do not hesitate to call Sally Collins at 225-342-7486.

Sincerely,
Amanda A. Laughlin, P.E.
Engineering Compliance Manager

Enclosure

ec: OPH Engineering District/Regional Offices
McDonald Valentine, Enforcement

ENGINEERING SERVICES
Bienville Building • P.O. Box 4489 • Baton Rouge, Louisiana 70821-4489
Phone #: 225/342-7499 • Fax #: 225/342-7303 • www.dbb.louisiana.gov
"An Equal Opportunity Employer"

Violations and Public Notification

- ▶ Public Notification (PN) required for:
 - Tier 2 PN for MCL violations (*e.g.*, TTHM LRAA > 0.080 mg/L or HAA5 LRAA > 0.060 mg/L)
 - ✓ 14 days for newspaper AND
 - ✓ 30 days for mail/hand delivery notice to customers
 - Tier 3 PN for Monitoring violations (*e.g.*, failed to monitor/report TTHM–HAA5, TOC, Bromate, chlorine, etc. results)
 - ✓ 45 days for newspaper AND
 - ✓ 90 days for mail/hand delivery notice to customers



Public Notices

- ▶ All of the *italicized* language between the two horizontal lines on the bottom of the first page and top of the second page must be in the public notice.
- ▶ Include the telephone number of the owner, operator, or designee of the public water system as a source of additional information concerning the notice.
- ▶ Steps being taken to comply should also be included.
- ▶ You may add language to the notice as long as it is factual.



Stage 2 DBPR – Records

- ▶ Maintain the following for:
 - Initial Distribution System Evaluation (IDSE) Reports – 10 years
 - Monitoring Plans – as long as it applicable
 - Chemical (*i.e.*, TTHM–HAA5) data – 10 years
 - LDHH correspondence (*i.e.*, violation/monitoring letters, etc.) – 3 years
 - Operational Evaluation Level (OEL) Reports – 10 years
 - Public Notices – 3 years
 - Consumer Confidence Reports – 3 years



DBPR Compliance Alternatives

BAT – Improve Distribution System & Storage Tank Management:

- Reduce Residence Times in Dead Ends by implementing a Flushing Program
- Reduce Residence Times and Dead Zones (mixing) in Storage Facilities

Alternative Disinfectants (Use in combination with Chlorine)

- Chloramines (maybe harder to meet CT requirements)
- Chlorine Dioxide
- Ozone (high cost)
- UV

TOC Reduction:

- Flocculation & Filtration
- Granular or Powdered Activated Carbon (GAC/PAC)
- Membranes (NF, RO) – pilot study and DHH approval is required
- Oxidants (*i.e.*, Potassium permanganate (KMnO_4))



Water Quality Testing Guidance

- [DHH Certified Laboratories for Chemical and Microbial Public Water System Testing](#)
- [Groundwater Source Chemical Testing Guidance](#)
- [Approved Laboratory Form \(Instructions\)](#)

Consumer Confidence Reports (CCRs)

- [2013 Consumer Confidence Reports by Parish](#)
- [Certification of Distribution Form](#)
- [Archived Consumer Confidence Reports](#)

Disinfection Byproducts Stage 1 and Stage 2

- [Stage 1 DBP Result Submission Form](#)
- [Stage 2 IDSE Report \(form 7\)](#)
- [Stage 2 Compliance Monitoring Plan](#)
- [Stage 2 DBP Result Submission Form](#)
- [Stage 2 Monitoring Cheat Sheet](#)
- [D/DBP Certified Laboratories](#)
- [D/DBP Stage 2 Lab to State Crosswalk](#)
- [D/DBP Operational Evaluation Level \(OEL\) Report](#)

Lead and Copper Rule (LCR)

- [Reduction of Lead in Drinking Water](#)
- [Homeowner's Instructions](#)
- [Sample Log Sheet \(Form A\)](#)
- [Change of Sample Location \(Form B\)](#)
- [Lead Consumer Notices](#)



Stage 2 D/DBP Sample Schedules

All public water systems must collect a TTHMs/HAA5 sample set at each sample site.

Yearly water systems are required to collect a TTHMs/HAA5 sample set during the PHM at each sample site.

Quarterly water systems are required to collect a TTHMs/HAA5 sample(s) every 90 days from your PHM after the MBD. (For Example: If the PHM is September, and the MBD is 4/1/2013, the water system would begin monitoring in June of 2013 and every 90 days thereafter)

A CHILDS WORLD DAY CARE & LEARNING CENTR

PWS ID LA2005266

Monitoring Begin Date: 1/1/2013

Frequency of Sampling: Yearly

PHM or Collection Month:

[Sample Point ID](#)

[Sample Address/Location](#)

9 - September

DBP01

KITCHEN TAP

9 - September

DBP02

1 YEAR OLD ROOM

A T AND T

PWS ID

LA2103459

Monitoring Begin Date: 1/1/2013

Frequency of Sampling: Yearly

PHM or Collection Month:

[Sample Point ID](#)

[Sample Address/Location](#)

9 - September

DBP02

LAVATORY

9 - September

DBP01

AT&T DANEY STREET SAMPLE TAP

Previous

Next

PHM = Peak Historical Month
MBD = Monitoring Begin Date



Questions?

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DBP Compliance Engineer
225-342-7486

Sean.nolan@la.gov

Brandon Taylor
Compliance Manager
225-342-7269

Brandon.taylor@la.gov

Caryn Benjamin
Deputy Chief Engineer
225-342-6157

Caryn.benjamin@la.gov

Websites:

Safe Drinking Water Program

www.dhh.la.gov/SafeDrinkingWater

Certified Labs

<http://new.dhh.louisiana.gov/index.cfm/page/490>

Drinking Water Watch

<http://new.dhh.louisiana.gov/index.cfm/page/1290>

